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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/608,776

06/30/2003

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08/23/2007

EXAMINER

FLORES RUIZ, DELMA R

ART UNIT

PAPER NUMBER

2828

MAIL DATE

DELIVERY MODE

08/23/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

Application No.

10/608,776

Applicant(s)

YAMAMOTO ET AL.

Examiner

Delma R. Flores Ruiz

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 May 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 9-22 is/are allowed.
- 6) ☒ Claim(s) 1-8 and 23 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

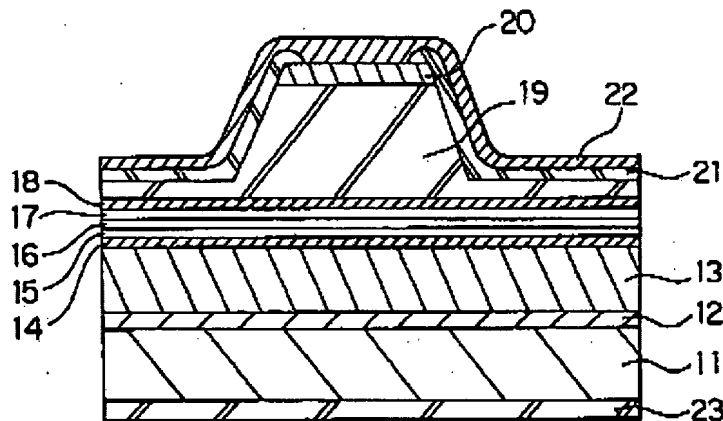
(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1 – 3, and 5 – 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohkubo (5,832,018) in view of Serreze (5,222,090).

***Regarding claims 1, 2, 5, 8 and 23,*** Ohkubo discloses semiconductor laser comprising; a lower clad layer (see Fig. 1, Character 13) a lower guide layer (reference call "confinement", see Fig. 1, Character 14), an active region (see 1, Characters 15 – 17) and upper guide layer (see Fig. 1, Character 18) and an upper clad layer (see Fig. 1, Character 19) are supported by GaAs substrate (see Fig. 1 Character 11), the active region having a quantum well (see Fig. 1, Characters 16) structure in which one or more well layers and barrier layers (see Fig. 1, Characters 15 and 17) are stacked, wherein said barrier layer are formed of any one of InGaP, InGaAsP and GaAsP (Abstract) and said upper and/or lower guide layer is formed of  $\text{Al}_z\text{Ga}_{1-z}\text{As}$  ( $0.20 < z < 1$ ) (see Figure 1,

Character 14 and 18, Column 1, Lines 24 – 27 and 45 – 49).

Ohkubo discloses the claimed invention except for one or more well layers are formed of any one of InGaP, InGaAsP or GaAsP and semiconductor laser device having an oscillation wavelength of larger than 760nm and smaller than 800nm. Serreze teaches providing his device with one or more well layers are formed of any one of InGaP, InGaAsP or GaAsP and semiconductor laser device having an oscillation wavelength of larger than 760nm and smaller than 800nm. However, it is well know in the art for one or more well layers are formed of any one of InGaP, InGaAsP or GaAsP and the high power semiconductor laser device to have an oscillation wavelength larger than 760nm and smaller than 800nm as discloses by Serreze in Column 4, Lines 47 – 50 and Column 1, Lines 6 – 10 and 63 – 68. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to combine semiconductor laser device of Serreze with the semiconductor laser device of Fukunaga because InGaP and InGaAs Ps has a lower thermal conductivity and produce outputs having waveguide varying from 670nm and the wavelength produce by pure GaInP to 860nm and be used for many applications including the pumping of solid state laser who absorption spectra are within this wavelength range and it would provide a high power semiconductor laser device with low threshold current, (see Column 3, Lines 28 – 36 and Column 4, Lines 47 – 50).



**Regarding claims 3, and 4,** Ohkubo discloses a upper and lower cladding (see Fig. 1, Characters 13 and 19) contain Al, and a value of  $z$ , wherein a value of  $z$  represent a mole fraction of Al in the group-III elements of said upper and/or lower guide layer, is smaller than a value of an Al mole fraction of said upper and lower clad layer and the value of  $z$  varies stepwise or continuously and is such a fashion as to increase with increasing nearness to said upper and lower clad layers (abstract, Column 3, Lines 30 – 52).

**Regarding claims 6, 7,** Ohkubo discloses a one or more well layers and barrier layer have a compressive stain (see Fig. 1, Characters 16, Column 4, Lines 1 – 11).

***Allowable Subject Matter***

Claims 9 – 22 are allowed.

The following is an examiner's statement of reasons for allowance: Claim 9 recites a semiconductor laser structure including the specific structure limitation of barrier layer are formed of an  $\text{In}_{1-x}\text{Ga}_x\text{As}_{1-y}\text{P}_y$  having a band gap energy larger than that of said well layers, and there hold relationship that  $0 < x < 1$ ;  $0.02 < y < 0.75$  and  $|(a_2 - a_1) / a_1| * 100 \leq 0.65$ , where  $a_1$  is lattice constant of said one or more well layers, and  $a_2$  is lattice constant of said barrier layers, which is neither anticipated or disclosed nor suggested in any piece of available prior art, which is neither anticipated nor obvious over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

### ***Response to Arguments***


Applicant's arguments with respect to claims 1 – 22 have been considered but are moot in view of the new ground(s) of rejection.


### **Conclusion**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delma R. Flores Ruiz whose telephone number is (571) 272-1940. The examiner can normally be reached on M - F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Min Sun Harvey can be reached on (571) -272-1835. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Delma R. Flores Ruiz  
Examiner  
Art Unit 2828  
DRFR/MH  
August 13, 2007

  
Min Sun Harvey  
Supervisor Patent Examiner  
Art Unit 2828